I027852

Miller, Robert

From: Bob Spencer <Bob.Spencer@agri.idaho.gov>
Sent: Monday, July 20, 2015 1:54 PM
To: Miller, Robert; Terada, Derrick
Cc: Liu, Linda; Mastrota, Nicholas
Subject: RE: Major new bird kill linked to zinc phosphide
Attachments: 15023 Case review summary.docx

Our investigation is completed and I am attaching my case review summary. The report is approximately 18 MB, so I'm not sure if your email will be able to accept it. After reading the case summary, please let me know if you still would like a copy of the full report and I can figure out a way to send it to you.

Bob Spencer, Bureau Chief
Idaho State Department of Agriculture
Division of Agricultural Resources
P.O. Box 790
Boise, ID 83701
(208) 332-8613 work
(208) 334-3547 fax
bspencer@agri.idaho.gov

From: Miller, Robert [mailto:Miller.Robert@epa.gov]
Sent: Monday, July 20, 2015 11:42 AM
To: Terada, Derrick
Cc: Liu, Linda; Bob Spencer; Mastrota, Nicholas
Subject: RE: Major new bird kill linked to zinc phosphide

Hi Derrick,

Often times states don't release information until their investigations are completed.

We would greatly appreciate receiving the final report from the state lead agency when it is completed.

Thanks,

Bob

Robert A. Miller
6(a)(2) Coordinator
(703) 347-8012
Information Technology and Resource Management Division
EPA Office of Pesticide Programs
United States Environmental Protection Agency
1200 Pennsylvania Avenue, N.W., Washington D.C.

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From: Terada, Derrick
Sent: Monday, July 20, 2015 1:36 PM
To: Miller, Robert
Cc: Liu, Linda; bob.spencer@agri.idaho.gov
Subject: RE: Major new bird kill linked to zinc phosphide

Bob, the contact for this case at ISDA is Bob Spencer, I have cced him on this email. I am not sure of their policies regarding releasing case information during an investigation so I will defer to him. Thanks!

Derrick Terada
Pesticides and Toxics Unit
Office of Compliance and Enforcement
U.S. EPA, Region 10, Suite 900
1200 Sixth Avenue, OCE-084
Seattle, WA 98101
P: (206) 553-4768

From: Liu, Linda
Sent: Monday, July 20, 2015 8:32 AM
To: Terada, Derrick
Cc: Miller, Robert
Subject: FW: Major new bird kill linked to zinc phosphide

Good morning Derrick – I just talked to Bob (Robert) Miller in OPP regarding this bird kill in Idaho. Bob indicated that OPP would like to get the final report (or an update if the investigation is still on-going) of this bird kill event. Bob is the new Norm Spurling. Norm retired last year. Would you please help Bob and contact ISDA for this? The report could be sent electronically to Bob at miller.robert@epa.gov and Nick Mastrota at mastrota.nicholas@epa.gov.

Thank you, Derrick!

Linda
(206) 553-1447

From: Miller, Robert
Sent: Monday, July 20, 2015 7:37 AM
To: Mastrota, Nicholas
Cc: Liu, Linda
Subject: RE: Major new bird kill linked to zinc phosphide

Thanks, Nick. I wasn't aware of this incident.

From: Mastrota, Nicholas
Sent: Monday, July 20, 2015 10:00 AM
To: Lowit, Michael; Miller, Robert
Cc: Sankula, Sujatha; Wente, Stephen; Odenkirchen, Edward; Panger, Melissa; Garber, Kristina
Subject: Major new bird kill linked to zinc phosphide

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I have found reports on the internet of a major bird kill that took place in Idaho in March. About 2500 migrating ducks, geese, and waterfowl were killed in March of this year in southeastern Idaho. Toxicosis analysis indicate that at least

some of the birds were killed by zinc phosphide poisoning. Zinc phosphide is a commonly used rodenticide and I believe it is used extensively for vole control in NW states. There have been numerous previous incidents of large kills of migratory waterfowl in the pacific northwest linked to zinc phosphide poisoning.

ID Fish and Game news release: http://fishandgame.idaho.gov/public/media/viewNewsRelease.cfm?newsID=7652

National Wildlife Health Center database record: https://www.nwhc.usgs.gov/whispers/event/17111

Someone should follow up and get a complete report on this from ID Fish and Game or ID Department of Agriculture. This incident has not been entered in EIIS.

Nick

Case review summary: On March 16, 2015, Idaho Fish and Game (IDFG) issued a press release stating that approximately 2,200 migrating lesser snow geese died in the Mud Lake area allegedly due to Avian Cholera. Later on, IDFG received sample results that showed some of the geese may have died from an exposure to zinc phosphide rodent bait. ISDA was first informed of the zinc phosphide poisoning from Dr. Mark Drew, IDFG on April 22, 2015. The initial claim made by Dr. Drew was that several dozen geese had been confirmed with zinc phosphide intoxication. Jacob Grey, IDFG, stated there were sick/dead geese observed by Brian (?) on March 12th at Market Lake. Mr. Grey began noticing dead geese starting to accumulate on the north shore of Mud Lake between Mar 12th - 14th. Martha Wackenhut, IDFG, stated they found and collected a single dead goose in the Blackfoot, Idaho area on March 18th.

IDFG Necropsy reports and sample results:

There appear to be two samples with the identification number N15-274.
N15-274 consisted of two snow geese, which one goose (001) was a confirmed phosphide poisoning and the other goose (002) was suspected phosphide poisoning. Analysis conducted by National Wildlife Health Center, Madison, WI.
N15-274 consisted of one snow goose, which was confirmed phosphine poisoning (200 ppm). Analysis conducted by U of I ASL.

N15-279 consisted of one snow goose from Blackfoot area, which was confirmed phosphine poisoning (12 ppm). Analysis conducted by U of I ASL.

N15-280 was a composite sample consisting of nine (9) snow geese and one (1) Ross' goose, which the sample was confirmed for phosphine poisoning (27 ppm). Analysis conducted by U of I ASL.

Based on this information, there appears to be a total of 13 geese collected by IDFG with two (2) samples consisting of a composite of two (2) geese and 10 geese. Therefore, it cannot be determined if there were just three (3) geese confirmed positive or 13 geese confirmed positive for phosphine poisoning. There is quite a bit of disparity from the several dozen geese being confirmed poisoned from zinc phosphide as initially reported to ISDA by Dr. Drew.

According to the necropsy reports by Dr. Drew, the geese appeared to be eating a grass-like substance observed in their esophagus and crop. There was also a description of a pale tan gritty material or yellow granular material observed in the GI tract. Zinc phosphide treated bait is typically light to dark grey or black in color. However, some of the Prozap Zinc Phosphide pellets do have a yellowish to brown coloration. The yellowish color would be attributed to ground up corn used to make up the pellets. It should be noted that some fields are also being fertilized simultaneously and the yellow pellets could possibly be sulfur coated fertilizer, which could be picked up when geese "scoop" feed.

Due to the grass-like substance found in the stomach contents, ISDA primarily focused its investigation on applications of zinc phosphide on grain fields. Note that there was a significant number of alfalfa fields treated with zinc phosphide, but according to observations made by local aerial applicators, no geese were observed feeding in alfalfa fields. They did observe a number

of grain fields where geese were feeding. Due to the large number of agricultural fields being treated, ISDA limited the scope of its investigation to a three (3) mile radius around Mud Lake area where the largest numbers of dead geese were found. ISDA also limited the scope of the investigation to applications that occurred between March 10th through March 20th, 2015. This was based on when dead geese were observed and the toxicity data provided indicating death should occur with 48 hours after ingestion. No dead geese were reported after March 18th.

Spring snow melt came early in 2015 and there was a significant problem with voles in a number of agricultural crops, primarily wheat, barley and alfalfa. There were reports that snow geese may have also been migrating through the area earlier than in the past. Aerial photos were taken of grain fields near Mud Lake, which showed significant signs of vole damage in grower's fields. Typically, snow geese have already migrated through when applications of zinc phosphide take place. Zinc phosphide was applied throughout the southern Idaho region, but no significant bird losses were reported from potential exposure to zinc phosphide. Mud Lake is located within the Pacific Flyway for the migration of snow geese.

It is difficult to say if the source of zinc phosphide exposure occurred in Idaho or somewhere else outside of Idaho. There was no indication on how long the geese were in the Mud Lake or Market Lake area. A North Dakota Outdoors article http://www.und.edu/org/ndwild/snowg.html indicates that snow geese can cruise at 40 miles per hour and may fly 1500 miles nonstop.

The primary manufacturers of zinc phosphide are: Bell Laboratories; Hacco; USDA Aphis; and Wilco. Distribution and applicator records for zinc phosphide were collected from local dealers and applicators in the area. A review of the application rates appeared to be within labeled rates for Zinc Phosphide. Rates ranged from five (5) pounds per acre on grain and seven (7) pounds per acre on alfalfa. The maximum labeled broadcast rate for 2% zinc phosphide on alfalfa is 10 pounds per acre and six (6) pounds per acre on grain. There are approximately 11,245 kernels of wheat in one (1) pound of zinc phosphide treated bait. At a maximum labeled rate of six (6) pounds per acre, that would be 67,470 kernels per acre. This equates to approximately 1.5 kernels per square foot.

Toxicity: Zinc phosphide is highly toxic to geese and affects the central nervous system. Zinc phosphide converts to phosphine gas under acidic conditions in the gastrointestinal tract. The LD_{50} ranges from 7.5 to 12.0 mg/kg for geese. It is estimated that a snow goose would need to consume approximately 30 – 40 pellets for a lethal dose. A goose would need to feed over an area of 20 – 27 square feet to obtain a lethal dose. This calculation does not take into account of the bait that is being consumed by voles, which would potentially increase the size of the feeding area. Death from zinc phosphide typically occurs within 12 – 48 hours, once a lethal dose is ingested. Zinc phosphide breaks down fairly quickly in the environment, particularly in the presence of water; therefore, it is unlikely there would be uptake by the crops that are being treated.

On May 15, 2015, IDFG issued a press release stating that 24 birds were randomly selected and examined by the Idaho Fish and Game Wildlife Health Lab. The lab results indicated that some of the tested birds died from zinc phosphide poisoning. They also indicated that Avian Cholera may have played a part in the die off, but to what extent is unknown. IDFG further stated that

although unfortunate, the die off will not affect overall snow goose populations, which number in the millions.

There was no indication of any misapplications of zinc phosphide to agricultural crops. There did not appear to be any spills of the bait where geese would have access to large quantities. Although there was a significant amount of zinc phosphide applied to fields in the Mud Lake area, it is also unknown whether the zinc phosphide exposure to the geese occurred in Idaho or outside of Idaho, due to how far and quickly snow geese can travel in a short period of time. The majority of the dead geese were found in Mud Lake and Market Lake. Mud Lake and Market Lake are known resting places for snow geese while migrating through Idaho along the Pacific flyway. Only one snow goose was found dead in an agricultural field in the Blackfoot area that was positive for zinc phosphide. There were no reports from aerial applicators of dead geese found in agricultural fields, but there were a number of reports of geese feeding in grain fields. Due to the high vole populations and early snow melt, it appears that this may have been a timing issue on when rodenticide applications were taking place at the same time the snow geese were migrating through Idaho. This is the first time Idaho has experienced a significant goose kill from rodenticide applications. During the investigation, ISDA also took the opportunity to educate and create awareness with applicators and dealers regarding the potential adverse effects when making rodenticide applications. As previously noted, there was a significant amount of zinc phosphide rodenticide applied on a number of other agricultural fields in southern Idaho with no reported adverse effects to geese in the Treasure Valley or Magic Valley areas.

Since no violations were identified during this investigation, this case will be entered as NAI (no action initiated), unless additional information is introduced to show otherwise.